Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

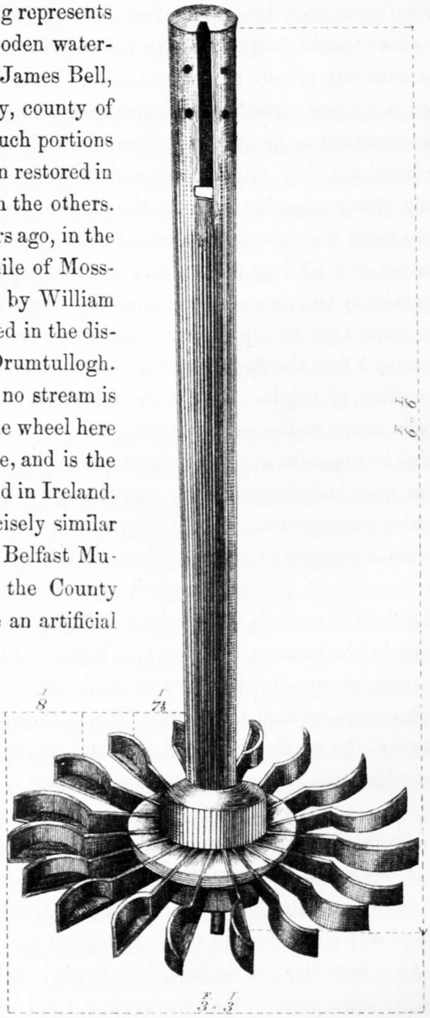
We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

ANCIENT WATER-MILLS.

THE accompanying drawing represents accurately an ancient wooden water-wheel in the possession of Mr. James Bell, of Prospect, near Ballymoney, county of Antrim, excepting only that such portions as are now imperfect have been restored in the drawing to correspond with the others. It was found a number of years ago, in the bog of Moycraig, within one mile of Moss-side, on a farm now occupied by William Hamill, and which is comprised in the district called the Grange of Drumtullogh. The spot is low and flat, and no stream is at present visible near it. The wheel here represented is a horizontal one, and is the most perfect specimen yet found in Ireland. Portions of another, of precisely similar construction, are now in the Belfast Museum, which were found in the County Down, near Killinchy, beside an artificial island or water-fastness, which is now occupied as a garden. The material of the wheel now figured is oak, and when found it was quite soft and spongy, from long immersion in the bog; but on being dried it recovered its hardness and appeared perfectly sound. The water-wheel consists of a nave and upright axle, both cut out of one solid piece of wood; the entire length being six feet six inches. Round the nave are inserted nineteen buckets or ladles, also of oak, curved in the manner shown in the drawing, and which received the impulse of the stream of water. Ten of these still remain perfect. At the upper end of the axle is a deep groove, twelve inches long, in which moves an oaken wedge, evidently used for the purpose of raising or lowering a small mill-stone which was placed above, or for what would be called now "gristing the mill." The whole mechanism was supported by a stone pivot or gudgeon secured by a wedge at the foot of the axle, where it still remains. This pivot, no doubt, revolved upon another stone hollowed to fit it. A stone of this kind was, in fact, found near



the water-wheel at Killinchy, and is preserved along with it in the Belfast Museum, bearing evident marks of having been deeply perforated by some pivot constantly revolving in it. The buckets are ingeniously fastened into the nave by morticing, and are firmly secured by an oaken pin driven in a sloping direction from the outer circumference of the nave, in such a manner as to pass through the inner ends of *three* buckets at once; and, as these pins were nineteen in number, and at equal distances, each bucket in the wheel had three pins passing through it, thus securing it completely to the two adjoining ones and to the nave.

No tradition now remains among the people respecting the use of water-mills of this construction in the country; but there is evidence (which I give further on) to prove that they were common—at least in Ulster—three centuries ago. However, down to that period, and even later, the use of the quern or hand-mill was quite general throughout Ireland, and its use is not yet given up in some of the Western Islands of Scotland.

So early as the thirteenth century legal means were adopted in Scotland to compel the people to abandon the use of the hand-mill for the larger water-mills then introduced. In 1284, in the reign of Alexander III., it was enacted that " na man sall presume to grind quheit, maishlock, or rye, with hands mylne, except he be compelled be storm, or be lack of mills, quhilk sould grind the samen. And in this case, gif a man grinds at hand mylnes, he sall gif the threttein measure as multer: and gif anie man contraveins this our prohibition, he sall tine his hand mylnes perpetuallie." Yet in 1819, McCulloch [*Western Isles*, *Vol.* 2, *p.* 30] states that the quern is found in every house in St. Kilda: and the *Statistical Account of Scotland*, published in 1845, mentions that in the parish of Sandsting, in Shetland, there are " querns or hand-mills without number."

There seems to be reason, however, for believing that water-mills were not unknown in Ireland at a very early period. Dr. O'Donovan, in an article in the *Dublin Penny Journal*, has quoted several passages from the Brehon laws, which are of great antiquity, stating the damages to which the miller and the mill-wright shall be respectively liable in case of an accident occurring in a *mill turned by water*. He also gives reference to many of the Lives of Irish Saints, in which water-mills are expressly mentioned as having been erected by ecclesiastics; proving that they were in use in Ireland not long after the introduction of Christianity. Mr. Getty, in his account of Torry Island, [*Ulster Journal of Archæology*, *vol.* I., *pp.* 143, 146] mentions the curious circumstance of a very ancient stone cross being fastened at its base into a *mill-stone ;* and notes the tradition of the islanders, that all ancient buildings there have a *mill-stone* in their foundation. In the notes to the translation of the *Annals of Ulster*, (now in course of publication in this Journal,) at A.D. 587, it is stated, from the *Breviary of Aberdeen*, that Constantine, a King of Damnonia. in Britain," having abdicated his throne, repaired to Ireland, and became miller to a monastery." It is well known that a mill was almost always in connection with religious houses of the Cistercian order. In the *Annals of Tighernach*, one of the most trustworthy of our old Irish Chronicles, there is a curious passage at the year 561, where mention is made of the slaughter of the sons of Blathmac, King of Ireland, in the *mill* of Maelodran; and a verse is quoted from an ancient poem in which the bard fancifully addresses the mill thus:—" O mill! what hast thou ground?—precious wheat! Thou hast ground, not oats, but the sons of Cerbhall," &c. [*O'Conor, Rerum Hib. Scriptores, vol.* 2, 198.] The writers of the historical notes to the Ordnance Survey of Londonderry give quotations from the *Book of Kells*, [*MS. Trinity College*] and the *Registry of Clonmacnoise*, [*Clarendon MSS., Brit. Museum*] in which grants of mills to monasteries in the eleventh century are mentioned: and various passages may be found scattered through our Irish Annals in which allusion is made to mills.

Most writers who have mentioned the subject seem to take it for granted, that water-mills must have been introduced into Ireland by Roman ecclesiastics, or at all events from some country subject to Roman sway, especially as it is pretty well ascertained that a mill of some kind was usually established at each Roman station in Britain: and a decisive evidence seemed to be afforded by the similarity, or rather identity of the Irish and Latin names for a mill. A little further examination of the question may perhaps show that this is not so certain, at least as far as the North of Ireland is concerned.

I shall take the philological argument first. Down to a comparatively recent period it was a universal custom among the learned to consider words as necessarily borrowed from the Latin or Greek, whenever any marked resemblance appeared; losing sight of the fact that these languages were themselves the descendants of a still older mother-tongue, which had given birth to numerous independent dialects. The habit is still persisted in by many persons who have not watched the progress of modern Comparative Philology. To an etymologist of this school the Irish word for a mill, *muileann*, (anciently *muilend*,) would appear to be clearly derived from the Latin *molendinum*. The old Irish lexicographer, Cormac, who compiled his Glossary in the 9th century, was not of this opinion, though he gives numerous other explanations of words from Latin, Greek, and Hebrew. He says:—" *Muilend*, compounded of *Mol*, i.e. a shaft, and *ond*, a stone; for these are the two things called *the mill.* Or *moland*, q.d. *mo-a-ail*, because its stones are larger than those of the quern *(clocha bron)*. *Muilend* is derived by some from *mel*, to grind, and *lind*, a pond, because it grinds by means of a pond." These derivations of Cormac may be considered more ingenious than probable; although it is worthy of remark that the only word used in Irish for the axle of a mill is the one he has mentioned, *mol*, which has every appearance of being a primitive root. If we found the word *molendinum*, or other dialectic forms of the same root, in those languages only which are known to be direct descendants of the Latin tongue, such as the Italian, Spanish, French, Walloon, &c., we might suspect that it had been borrowed by the Celts of Britain and Ireland. The forms in which it appears in these modern languages are as follows:—

Italian,	Spanish,	French,	Walloon,
mulino.	*molino.*	*moulin.*	*molin.*

But if we examine further we shall find the very same root, little more changed than in the above examples, in a great variety of other languages which can claim an origin as independent as the Latin, and are spoken by nations who were never influenced by Roman sway. The following table exhibits the words signifying "a mill," used in the chief languages of Europe, excluding those already mentioned. It is deserving of note that in all of them the words expressing "mill," the grinding-machine, and "meal," the substance ground, are merely slight modifications of the same root, just as in English; and this circumstance increases the probability that the root is original in these languages, especially when we find that in the Latin and all its immediate descendants, a word entirely different is uniformly employed to denote "meal."[a]

Icelandic, *mylna.*
Danish, *mölle.*
Swedish, *möll,*
Frisian, *mellen.*
Dutch, *molen.*
Old German, *mulin.*
Modern German, *mühle.*
Swabian, *mülin.*
Anglo-Saxon, *miln.*
English, *mill.*
Welsh, *melin.*
Bas-Breton, *milin.*
Irish Gaelic, *muileann.*
Scottish Gaelic, *muileann.*
Manx, *mwyllin.*
Lithuanian, *malunas.*
Bohemian, *mlyn.*
Polish, *mlyn.*
Wendish, *mlon.*
Russian, *melynica.*
Illyrian, *malin.*
Laplandish, *milla.*
Finnish, *müllün.*
Maygar (or Hungarian), *malom.*
Albanian, *muli.*
Greek (ancient), μυλη.
„ (modern), μυλος.
Latin, *mola*, *molendinum.*

It will be observed from the preceding table (which might be still further extended) that the word is found from the shores of the Mediterranean to the North Pole, and from the coasts of Spain and Ireland to the extremity of Russia. To complete the chain we have only to note further, that in Persian *mâl* is "to grind," and that in Sanscrit, the old language of India, *malana* signifies "rubbing or grinding." The root is therefore one common to all the extensive class of languages known as the Indo-European family, as well as to several out-lying dialects not included among them. There can be little doubt, therefore, that it is one of extreme antiquity, and cannot be claimed exclusively by the Latin any more than by the Celtic.

Next, as to the probability of the Romans having introduced the water-mill into the British islands. Even so late as the age of Vespasian, (who died A.D. 79), the old primitive process of *pounding* corn in mortars was still in use throughout Italy.[b] This was a trade followed by only the poorest people; and at one time of his life, Plautus, the well-known Latin author, pounded corn for a livelihood. Pliny says that two of the chief families of Rome (Pilumnus and Piso) took their names from having invented or improved the construction of the pestle used for this purpose.[c] However, the hand-mill was no doubt in extensive use from a remote period, not only in Italy,[d] but all over Europe and the East. We meet with allusions to it in the Bible; and it must have been well known among the Gauls and Britons in Cæsar's time, as he speaks of their *molita cibaria*, or ground bread-stuffs.

---

[a] Namely—Latin, *farina;* Italian, *farina;* Spanish, *harina;* Portuguese, *farinha;* French, *farine*, &c.

[b] Plin. Lib. xviii. c 10.

[c] Plin Lib. xviii. c. 3.

[d] Terence often uses the expression *ad pistrinum.*

The water-mill does not appear to have been a Roman invention: Strabo mentions that a mill of this kind was erected in Pontus (in Asia) at the palace of King Mithridates,[e] which is the earliest of which we have any record. Indeed we have it on Roman authority that water-mills were not introduced into Italy before the time of Julius Cæsar (who died B.C. 44); and were then only used by a few individuals.[f] Pliny's slight notice of them, which only occurs in one sentence of his entire great work, shows that they were by no means common in his day[g]: he died A.D. 79. The earliest mention of *public* water-mills is about the year 398, under the Emperors Arcadius and Honorius; and the manner in which they are referred to in the laws of the period shows that they were then a novelty.[h] Now it was at this very time that the Romans finally abandoned Britain.

It appears, therefore, that the Romans never used water-mills to any great extent; nor have we any satisfactory proof that they established such mills at each of their military stations in Britain. Many small mill-stones, indeed, belonging to Roman *hand*-mills, have been discovered on the sites of Roman stations; but, so far as I am aware, only a few doubtful cases have been brought forward to prove the existence of water-mills at those places.[i]

For the foregoing reasons, and from the consideration that there never was a friendly intercourse maintained between Ireland and the Roman province, it seems unlikely that water-mills were introduced into this country from Roman Britain. We must therefore seek for their origin in some other quarter: and in my opinion the weight of probability rests on the North of Europe. Although the Danes and Norwegians did not effect their conquest of Ireland for many centuries after the departure of the Romans from their British province, they, and the other maritime tribes in the neighbourhood of the Baltic, had maintained an intercourse with these islands for an indefinite period. The details of this intercourse are unknown to us, further than what may be gathered from scanty allusions in old Irish Annals and Icelandic Sagas. But there seems to be little doubt that, during the obscure period alluded to, these Gothic tribes had been gradually colonizing the East and North of Scotland, and, of course, bringing with them whatever arts of civilized life they possessed; which, there is sufficient reason to believe, were greatly superior to those existing in their new colonies. A people who could send out fleets of well equipped vessels, and armies of mailed warriors, sweeping the coasts of Europe and conquering wherever they appeared, must have possessed considerable mechanical skill, and were not likely to be without water-mills for grinding their corn. Their native hills abounded in cascades, suggesting the employment of water-power, and their forests furnished the materials for their mill-wheels.

---

[e] Strabo, xii., 3, § 30.

[f] Vitruv. x. 5, 2.

[g] Plin. Lib. xviii. c. 10.

[h] Cod. Theodos, 14, 15.

[i] Whitaker [*History of Manchester*] mentions the discovery of a conduit which he considers to have been the mill-course of a Roman mill; but this and a few other similar traces by no means settle the question.

Now, it so happens, that the Irish poetical account of the first water-mill ever erected in Ireland, (written by a bard who died A.D. 1024), and the popular tradition, state that the mill-wright who constructed it was brought from Scotland. This was in the third century; when, as the poet relates, the monarch Cormac, desirous of saving a beautiful bond-maid the labour of grinding corn daily in a quern, sent *across the sea* for a mill-wright, who erected a mill on the stream of Nith, near Tara.[j] We have no description of this mill to assist us in forming a conception of its form or construction; but we may assume that it was of wood, and of a simple form, probably not very different from the one which is the subject of the present article. This traditionary story, at all events, points to the quarter from whence the invention was believed to have come. Now, if on examination we should find that mills quite similar to our specimen were in use, or are actually still in use, in a number of districts in the British islands, and the islands adjoining, known to have been peculiarly Scandinavian and for centuries under the government of the Northmen, it would be difficult to avoid the inference that these machines were introduced thither by them. This I am enabled to show from various independent authorities, whose several notices of mills I now place together for comparison.

1. *In the Feroe Islands*:—

> "The construction of a water-wheel in Feroe is exceedingly simple. The building, for the most part, consists merely of wood, the roof being supported by four posts or pillars; but, to save timber, these pillars are sometimes built of stone, mixed with mud: it is entirely open below, so that the water can have a free course through it. On the ground is placed a loose beam, having in the middle a piece of iron with a smooth hole in it, which, however, does not pass through the beam. This hole is made to receive the gudgeon of a perpendicular axle, which proceeds up to the mill-stone, and this axle supplies the place of a crown-wheel and spindle. To the upper end of the axle is fixed a round rod of iron, which passes through the lower stone, and which supports the iron cross that bears the upper mill-stone. At the lower end of the axle, there are eight leaves or boards, morticed into it, about eighteen inches in length, a foot in breadth, and from one to one-and-a-quarter inch in thickness. These leaves, which perform the part of a water-wheel, do not stand exactly in a perpendicular, but a somewhat oblique direction, so as to turn their flat sides towards the water which falls upon them; and the spout, which must give the water a sudden fall, is placed with its lower end close to these leaves. From one end of the beam lying on the ground, which supports the axle and the upper mill-stone, a piece of wood rises in a perpendicular direction towards the mill-work, where it rests on wedges: and by pushing in or drawing out these wedges, the upper stone can be raised or lowered at pleasure. The mill-stone makes a hundred revolutions in a minute; but as the stones, in general, are small, and have no furrows in them, they grind slowly, and are not calculated for the preparation of grits or barley."—[*Landt's Feroe Islands*, 1810, p. 293.]

---

[j] Poem of Cuan O'Lochain, quoted in the historical notes to the *Ordnance Survey of Londonderry.*

2. *In the Shetland Islands* :—

In skirting along the harbour [*Rigsetter Voe*, in Shetland] numerous slender rills were observed "ambling down the dales to pay their tribute to the Voe. These occasionally served to supply some small mill, the presence of which was signified by a low shed of unhewn stones, that stretched across a diminutive streamlet, over which it was possible in many places to stride :—compared indeed with a water-mill of Scotland or England, the grinding apparatus of Shetland seemed designed for a race of pigmies. The mill-stones are commonly formed of a micaceous gneiss, being from thirty to thirty-six inches in diameter. Under the frame-work by which they are supported, is a sort of horizontal wheel, of the same diameter as the mill-stones, named a *Tirl*, which consists of a stout cylindrical post of wood, about four feet in length, into which are morticed twelve small float-boards, placed in a slanting direction, or at an oblique angle. It has a pivot at its under end, which runs on a hollowed iron plate, fixed on a beam. A strong iron spindle, attached to the upper end of the Tirl, passes through a hole in the under mill-stone, and is firmly wedged in the upper one. A trough conducts the water that falls from the hill upon the feathers of the Tirl, at an inclination of 40° or 45,° which, giving motion to the upper mill-stone, turns it slowly round. To the hopper that surmounts the upper mill-stone there is a log of wood fastened, which, striking upon the uneven upper surface of the stone, shakes this repository for the corn and makes it come out; while too quick an escape is checked by a device for lessening the size of the aperture. But sometimes there is no hopper at all, and a man patiently feeds the mill with his hand." Such is a description of this exquisite piece of machinery, the invention of which is probably as old as the time of Harold Harfagre. Captain Preston, the author of the old nautical chart of Shetland, was, during his detention on this coast by shipwreck, shown a Shetland mill, and was at the same time informed that it had been for many years a source of dispute between two landed proprietors. The Englishman looked at his Cicerone with surprise, and, significantly eyeing the object of contention, replied with a sneer,—"I can certainly conceive of no dispute which such a structure ought to have reasonably occasioned, but—whether it is a mill or no!"—[*Hibbert's Description of the Shetland Islands*, 1822.]

3. *In the Hebrides* :—

"The mills in Lewis are probably the greatest curiosity a stranger can meet with on the island. There is scarcely a stream along the coast, on any part of the island, on which a mill is not to be seen. These mills are of very small size, and of a very simple construction. The water passes through their middle, where the wheel, a solid piece of wood, generally eighteen inches in diameter, stands perpendicularly. A bar of iron runs through the centre of this wheel. This bar of iron or axle rests on a piece of steel which is fixed on a plank, the one end of which is fixed in the mill wall, the other in the end of a piece of plank which stands at right angles with the plank on which the wheel rests. The upper end of the axle fits into a cross-bar of iron, which is fitted into the upper mill-stone, which is rested upon wooden beams or long stones. There is a purchase upon the end of the said perpendicular beam or plank, by which the upper mill-stone can be raised or lowered. There are nine pieces of board, eight inches broad and a foot and a half long, fixed in the wheel, parallel and at equal distance from each other, upon which the water is brought to bear: which, together with a few sticks for roof, and some heather for thatch, consitutes a Lewis mill."—[*New Statistical Account of Scotland*, 1845.]

In 1819, McCulloch states that the quern was found in every house in St. Kilda, and recommends the establishment of a water-mill to supersede it. He says:—" The expense of a Highland mill is no obstacle, as it does not amount to a great many shillings. The stones are about three feet in diameter, the upper being fixed on a vertical axis that passes through the lower and through the floor of the hut, which is built on the edge of a rock or bank over some stream. This axis is about four feet long, working on any casual stone by an iron pivot,—the only iron in the whole construction. Sixteen or eighteen rude sticks, scooped at the outer ends like a spoon, are driven horizontally into it, their flat sides being vertically placed to catch the stream directed against them. The hopper is suspended by four strings from the roof of the hut, which is scarcely sufficient to contain a man upright. It would not be easy to construct the horizontal mill on cheaper terms."—[*McCulloch's Western Isles of Scotland*, vol. 2, p. 30.]

4. *Isle of Man* :—

" Many of the rivers (or rather rivulets) not having sufficient water to drive a mill the greatest part of the year, necessity has put them on an invention of a cheap sort of mill, which, as it costs very little, is no great loss though it stands six months in the year. The water-wheel, about six feet in diameter, lies horizontal, consisting of a great many hollow ladles, against which the water, brought down in a trough, strikes forcibly and gives motion to the upper stone, which by a beam and iron is joined to the centre of the water-wheel."—[*Gibson's Camden (Isle of Man)*, vol. 2. p. 1448.]

5. *Ulster* :—

" I conclude with a few remarks more, viz., that from the said long bogg," [beside Newtownards, in the County Down] " issue many rills and streams, which make small brooks (some of them almost dry in ye summer), that run to ye sea on each side of ye upper half barony; and on them each townland almost had a little miln for grinding oats, dryed in potts or singed and leazed in ye straw, which was ye old Irish custom, the mealle whereof called *greddane* was very cours. The milns are called Danish or ladle milnes; the axeltree stood upright and ye small stones or querns (such as are turned with hands) on ye top thereof; the water wheel was fixed at ye lower end of ye axeltree, and did run horizontally among ye water; a small force driving it. I have seen of them in ye Isle of Man, where the Danes domineered as well as here in Ireland, and left their customs behind them."—[*Montgomery MSS.*, p. 321.]

Any one, by comparing the foregoing separate descriptions, will at once perceive that the several mills mentioned are identical, in principle and construction, with the one described in the present paper, while differing in a few details, such as the number of buckets or paddles. It will also be noticed that the districts, in which they are described as commonly used, form, when taken together, a geographical chain leading directly from the country of the Northmen through the old seats of their dominion in these countries, and terminating on the eastern coast of our own province. It will be seen, likewise, that the last of the extracts alludes specially to the popular tradition, both in Ulster and the Isle of Man, that these mills were *Danish*. The same passage (written about the year 1698) shows, also, that in the County of Down, a short time previously, such mills were quite common. It is only remarkable that more of their remains have not been discovered; but this has arisen, no doubt, from the perishable nature of their materials.[k]

Before quitting the present subject I would offer a few remarks on the term *greddan*, used in the last of the preceding extracts (from the *Montgomery MSS.)* to denote a kind of meal made from burnt corn.

Our ancestors prepared their grain for grinding in a very primitive manner. The most graphic account of the process that I have seen is given by Martin, in his *Western Islands of Scotland*, published in 1703. He says :—" The ancient way of dressing corn, which is yet used in several isles, is called *Graddan*, from the Irish word *grad*, which signifies quick. A woman, sitting down, takes a handful of corn, holding it by the stalks in her left hand, and then sets fire to the ears, which are presently in a flame. She has a stick in her right hand, which she manages very dextrously, beating off the grain at the very instant when the husk is quite burnt, for if she miss of that she must use the kiln, but experience has taught them this art to perfection. The corn may be so dressed, winowed, ground, and backed, within an hour after reaping from the ground. The oat-bread dressed as above is loosening, and that dressed in the kiln astringent, and of greater strength for labourers; but they love the *Graddan*, as being more agreeable to their taste. This barbarous custom is much laid aside, since the number of their mills encreas'd. Captain Fairweather, master of an English vessel, having dropt anchor at *Bernera* of *Glenelg*, over against *Skie*, saw two women at this imployment, and wondring to see so much flame and smoak, he came near, and finding that it was corn they burnt, he run away in great hast, telling the natives that he had seen two mad-women very busie burning corn; the people came to see what the matter was, and laugh'd at the Captain's mistake; tho' he was not a little surpriz'd at the strangeness of a custom that he had never seen or heard of before." [p. 204.]

---

[k] Some traces, however, have been discovered. Mr. Welsh, of Dromore, writes me that "about thirty years ago, a small mound of stones and rubbish (traditionally known to be the ruins of an ancient mill) stood in a field, in the townland of Killyscolban, county of Down, beside a small stream. It was removed by the late Mr. Reid of Ednego; and, in the progress of the removal, a small mill-stone was discovered, two feet nine inches in diameter, having a perforation in the centre of six inches. There was also found an oaken trough hollowed out of a solid piece of timber, measuring inside one foot four inches across, and 7½ inches deep. A portion of it still exists on the farm, and is converted into a trough for feeding pigs."

It is this custom that the following satirical allusion refers to, in a poem written a couple of centuries ago in derision of the Ulstermen, who are described as—

> "Yoking hobbies by the tail,
> And thrashing corn *with fiery flail.*"

Even legal enactments were passed against it; and the 10th and 11th of Charles I. direct that no person shall burn corn or grain in the straw, upon pain of imprisonment in the common jail for ten days.

The derivation given in the foregoing passage by Martin, for the term *Graddan*, is incorrect. The word undoubtedly comes from a root signifying to *scorch* or *burn*, which exists still in several languages. The English word *grid*-iron has the same origin; as also the Scotch *griddle*, Welsh *greidell*, Irish-Gaelic *grideal*, Scottish-Gaelic, *greadag* and *greidlean*, and Swedish *graedd-panna*, all signifying a plate of iron for frying or scorching different kinds of food. The root itself appears in the Irish and Scottish-Gaelic *gread*, the Welsh *greidio*, and the Swedish *graedda*, to scorch.[1]

The practice of scorching grain before grinding must have been prevalent in many countries from the most remote times. Various passages in the Old Testament make mention of *parched* corn;—as (*Leviticus*, xxiii., 14.) "Ye shall eat neither bread nor parched corn."—(*Ruth*, ii., 14.) "And he reached her parched corn and she did eat."—(1 *Samuel*, xvii., 17.) "Take now for thy brethren an ephah of this parched corn;" &c. The Greeks had a particular term for roasted grain, *καχρυς*, and we occasionally meet with allusions to it in Greek authors; as in Aristophanes, [*Nubes*, *l.* 1358] where he speaks of "women singing as they ground their *roasted* grain." The Romans must likewise have roasted their corn before grinding, although I do not find the fact specially mentioned by any of the writers on Roman antiquities. Virgil's line [*Æneid*, I., 183]:—

> ———— "frugesque receptas
> Et torrere parant flammis et frangere saxo,"

has been considered by some of his commentators to be a transposition of ideas; the application of heat being supposed to refer to the baking of the bread after grinding. I have no doubt, however, that the poet simply describes the process of roasting the corn before submitting it to the mill-stones. Pliny attributes the institution of the custom to King Numa, who ordained that an offering of salt and meal should be made to the Gods, and that the corn should be *roasted*, as being then a more wholesome food [*Lib.* 18, *c.* 2]; and he describes the process used in Etruria of first roasting the grain and then pounding it with a pestle and mortar. [*Lib.* 18, *c.* 10.] Indeed the application of heat to grain before grinding, as a means of facilitating that operation, is an idea that would readily occur to every people; and, there can be little doubt, that if the inquiry were pursued farther, we should find the custom in almost every country in the world. We still retain it even in modern times; for our process of *kiln-drying* is only the roasting of grain on a large scale.

Belfast. ROBERT MACADAM.

---

[1] O'Brien (*Irish Dict.*) gives another Irish word for burnt or roasted grain,—*loisgrean*, derived in like manner from the Irish word *losg*, to burn.